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AUTHOR Cooper, Pamela; Gibbs, Gordon L.
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ABSTRACT

For the 1971-72 tryout of IMS Version 3, special-purpose, optically scannable materials were developed and designed. Purpose, design considerations, and developmental stages are described for each form. Adapted formats for use with the Xerox 660 Scanner/Copier are explained. The forms are appended. (SK)

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TITLE: FORMS DEVELOPMENT FOR THE 1971-72 TRYOUT OF IMS VERSION 3

AUTHORS: Pamela Cooper and Gordon L. Gibbs

ABSTRACT

The 1971-72 tryout of IMS Version 3 required the development and design of special purpose materials for classroom use. The purpose, design considerations, and developmental stages for each such form are presented in this document. Samples of each form are also included.

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FORMS DEVELOPMENT FOR THE 1971-72 TRYOUT OF IMS VERSION 3

McManus (TN 5-72-04) has shown that kindergarten pupils can reliably mark machine readable forms. Investigations by Gibbs and Hooper (TN 5-72-05) indicated that SWRL could feasibly produce optically scannable forms for the OpScan 100DM. This created an IMS requirement for the development of forms that possess the following characteristics:

1. Compatability with existing instructional system forms, e.g., FYCSP Criterion Exercises; and
2. Adaptability as source data automation documents.

This document describes the design of such forms prerequisite to the 1971-72 tryout of IMS Version 3. Each form is discussed in turn, presenting its purpose, design objectives, and format development.

FYCSP MATERIALS

Criterion Exercise Sheets

Purpose. The function of the FYCSP Criterion Exercise Sheet is to provide a form on which kindergarten pupils can record their responses to items on a unit test.

Design objectives. The FYCSP Criterion Exercise Sheet must meet certain specifications: (1) similiarity to present format; (2) maintenance of present method of administration; and (3) human readability.

Form development. The original FYCSP four-sided, five-item per page format was reduced for IMS use to a two-sided ten-item per page sheet. Each item is identified by a row indicator that appears in the same sequence and (unlike the present FYCSP test) on both sides of the sheet in

each unit. Ten pictures were chosen as row indicators from a list of objects easily identified by kindergarten pupils (Okada and Baker, DM 17).

The IMS FYCSP Criterion Exercise Sheet directions also maintained the present method of administration in that the pupil responds to a teacher-administered test by marking an answer sheet. With the IMS Criterion Exercise Sheet the student darkens a response cell under the appropriate answer. Samples of the FYCSP forms and all other OpScan forms appear in Appendix A.

FYCSP Class Record Sheet

Purpose. The purpose of the Class Record Sheet is to establish and maintain an accurate, updated list of pupils in a class and to associate those names with a pre-established numerical code.

Design objectives. The following design objectives were set up for the Class Record Sheet: (1) ability to record pupil names by class; (2) ease of teacher use; and (3) ability to add and delete pupil names.

Form development. Development of the Class Record Sheet followed the format of existing class rosters. Two identical sheets, a white copy (original) and a yellow copy (SWRL) were printed. Pupils 1-30 are listed on the first side and pupils 31-60 are on side two. Corresponding binary codes, which are used by the teacher to encode the pupil identification numbers on the Criterion Exercise Sheets, are printed on each line of the Class Record Sheet.

Addition and deletion requirements are met easily with the Class Record Sheet. To add a pupil the teacher writes the pupil's name on the first

available blank line. To delete a student, the teacher crosses the student's name off the record sheet and no longer uses that line number.

Class Identification Sheet

Purpose. The Class Identification Sheet has two functions: (1) linking each set of IMS materials to a specific teacher, and (2) adding new pupils to the IMS data base.

Design objectives. The primary objective of the Class Identification Sheet was to provide pre-coded, machine readable information identifying district, school, teacher, class time and grade. A second requirement was the capability of transcribing a pupil's name into a machine readable code when using the ID Sheet as a pupil addition form.

Form development. Separate forms to identify teachers and to update the IMS data base were considered in developing the Class Identification Sheet. These two forms were consolidated to minimize the number of forms and consequently to maximize information contained on the ID Sheet.

Various arrangements of information contained in the form were examined in an attempt to determine the most readable and aesthetically pleasing design. Both lengthwise and upright orientations were designed; the lengthwise format was chosen as more compact and readable.

IMS/LMS FORMS

Criterion Exercise Sheets

Purpose. The LMS Criterion Exercise Sheets for Harper and Row 1 and 2 and Macmillan Bank Street provide a form on which a teacher can record student responses to items on a unit test.

Design objectives. The first objective was to create a form which altered only minimally the present testing and recording procedures used by teachers. Another was to maximize the number of pupil marks to be recorded on each sheet. A third was to minimize the teacher's clerical tasks.

Form development. There were several areas of concern in developing the LMS Criterion Exercise Sheet. One centered on the fact that the LMS test format changes in the later units from five items for each of three outcomes to ten items for one outcome. To accommodate this change two Criterion Exercise Sheets (forms A and B) were developed. This step simplified procedures, but required teachers to match units with the correct form and to code the exercise unit number. Therefore, it was decided to print a single pre-coded form.

Since the pupils respond verbally to the stimuli in LMS, the manner in which the teacher records the response, the number of items per row, and the number of pupils per page became the major considerations.

Outcome numbers were changed from Arabic to Roman numerals to match the output reports and to distinguish them from the item numbers. The position of the outcomes was shifted on the page to enable teachers to code from left to right on each row. Response cells were narrowed to simplify coding. Response cells on the form used with the later units of the Harper and Row programs were adjusted to match the positions on the form for earlier units. This was done to simplify preparation of control forms and to improve the appearance of the Criterion Exercise Sheet.

Since the teacher marks a pupil's incorrect response only, the marking row for that pupil would be blank if all his responses were correct. Therefore, a pupil with 100% correct scores could not be distinguished from a pupil not tested. It was decided to have teachers mark the pupils "TESTED" by darkening a special box at the end of each row.

Class Record Sheet

Purpose. Like the FYCSP Class Record Sheet, the IMS/LMS Class Record Sheet establishes and maintains an accurate list of pupils in a class and associates those names with a pre-established numerical code.

Design objectives. Design objectives for the Class Record Sheet emphasized creating a teacher-usable form for establishing and maintaining the pupil data base.

Form development. Alternative formats centered on the number of pupils per page and the number of sheets used. Like the FYCSP Class Record Sheet, the LMS sheet contains 30 lines per side numbered 1-30 and 31-60. These lines are further divided into six sets of "List Numbers," three List Numbers per side, containing 10 lines each.

Pupil List

Purpose. The IMS/LMS Pupil Lists serve as an intermediary device between the Criterion Exercise Sheet and the Class Record Sheet. The Pupil Lists comprise a set of six folders containing 10 lines each, i.e., List 1 contains lines 1-10; List 2, lines 11-20, etc. On these lines are names of pupils which correspond to the lines on the Class Record Sheet.

Design objectives. Design objectives included creating a reusable record of pupil names and providing a form which would match names on the Pupil List with response rows on the Criterion Exercise Sheet. The addition and deletion features of the FYCSP Class Record Sheet were to be incorporated in the Pupil List.

Form development. The basic format of the Pupil List is an envelope-like single sheet fold-over form. Six copies of the form were designed with pre-printed, computer readable page numbers. Lines were numbered 1-60, to make them correspond to the numbering sequence used on the Class Record Sheet.

Class Identification Sheet

The Class Identification Sheet used for LMS was designed according to the same specifications used for the FYCSP Class Identification Sheet.

LMS MATERIALS, HARPER AND ROW 3

Criterion Exercise Sheet

Purpose. The purpose of the HR-3 Criterion Exercise Sheet is to provide a form on which a student can record his responses to each item on a unit test.

Design objectives. Design objectives required that the IMS form conform to present testing and recording procedures. Ease of use by both teachers and pupils was another factor, as was the inclusion of identification information regarding pupil name, program and unit number.

Form development. The first format for HR-3 involved creating a scannable form which duplicated the existing LMS format. This possibility

was eliminated because each unit contains a different set of sentences and word lists and would require separate optical scanner control sheets for each unit. Another alternative was the use of a generalizable answer sheet, which would have an A-B-C-D indication of response position rather than the response stimulus. Research cited by McManus (TN 5-72-04) suggested that a separate generalizable answer sheet was too difficult for third grade students. Changes made during the development of this form primarily concerned the positioning of the response cells. The final version features a split page with Part I on the left and Part II on the right. Specific response stimuli were used rather than the generalizable sheet (e.g., A-B-C-D).

HR-3 Class Record Sheet

The HR-3 Class Record Sheet was designed according to the same specifications as the FYCSP Class Record Sheet.

HR-3 Class Identification Sheet

The HR-3 Class Identification Sheet is the same form as that used by LMS and FYCSP.

SPECIAL XEROX 660 SCANNER/COPIER FORMATS

The Class Identification Sheet had to be changed for use with the Xerox 660 Scanner/Copier. With the exception of the ID Sheet other forms remained unchanged for content. Some design changes were introduced for machine compatability (e.g., shape of response box). Special forms (i.e., end of class and end of transmission) were designed to meet hardware and software requirements. Samples of the special Xerox forms appear in Appendix B.

APPENDIX A:

Forms Used With OpScan 100 DM

PUPIL CODE

1 2 3 4 5 6

DELETE

FYCSP
UNIT 1

1

PUPIL NAME _____

	1	see	Sam	me
	2	at	am	Mat
	3	see	me	Sam
	4	Mat	am	at
	5	see	Sam	I
	6	am	s	at
	7	a	m	t
	8	e	s	a
	9	at	am	I
	10	m	i	s

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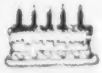
PUPIL CODE

1 2 3 4 5 6

FYCSP
UNIT 1

2

	11	me	Mat	sat
	12	am	see	Sam
	13	sat	I	see
	14	me	Mat	am
	15	Mat	see	sat
	16	I	e	T
	17	S	A	E
	18	e	i	t
	19	s	m	I
	20	e	A	M

IMS CLASS RECORD SHEET
FYCSP

Please type or print the names of all pupils in your class. If you have grouped your class for reading, please designate each pupil's group assignment.

TEACHER: _____ SCHOOL: _____

DISTRICT: _____ GRADE: _____ CLASS: A.M._____ P.M._____

PUPIL CODE	NAME	GROUP NO. (OPTIONAL)	
6			01
5			02
5-6			03
4			04
4-6			05
4-5			06
4-5-6			07
3			08
3-6			09
3-5			10
3-5-6			11
3-4			12
3-4-6			13
3-4-5			14
3-4-5-6			15
2			16
2-6			17
2-5			18
2-5-6			19
2-4			20
2-4-6			21
2-4-5			22
2-4-5-6			23
2-3			24
2-3-6			25
2-3-5			26
2-3-5-6			27
2-3-4			28
2-3-4-6			29
2-3-4-5			30

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PUPIL CODE	NAME	GROUP NO. (OPTIONAL)	
2-3-4-5-6			31
1			32
1-6			33
1-5			34
1-5-6			35
1-4			36
1-4-6			37
1-4-5			38
1-4-5-6			39
1-3			40
1-3-6			41
1-3-5			42
1-3-5-6			43
1-3-4			44
1-3-4-6			45
1-3-4-5			46
1-3-4-5-6			47
1-2			48
1-2-6			49
1-2-5			50
1-2-5-6			51
1-2-4			52
1-2-4-6			53
1-2-4-5			54
1-2-4-5-6			55
1-2-3			56
1-2-3-6			57
1-2-3-5			58
1-2-3-5-6			59
1-2-3-4			60

IMS CLASS IDENTIFICATION SHEET

TEACHER Bliss

PRINT THE NEW PUPIL'S LAST NAME FIRST, SKIP A BOX, THEN PRINT HIS FIRST NAME IN THE BLOCKS PROVIDED BELOW.

PUPIL NAME:

PRINT THE DATE OF TESTING OR ADDING A NEW PUPIL IN THE BLOCKS BELOW.

DATE:	MONTH	DAY	YEAR
			19

JAN	0	71
FEB	1	72
MAR	2	
APR	3	
MAY	4	
JUN	5	
JLY	6	
AUG	7	
SEP	8	
OCT	9	
NOV		
DEC		

IF A NEW PUPIL IS TO BE ADDED TO THE CLASS, MARK THIS BOX

MARK THE NEW PUPIL'S GROUP NUMBER (OPTIONAL)

1
2
3
4
5
6

15

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LIST NUMBER

HR-2

UNIT

5

IMS
CRITERION EXERCISE
RECORD SHEET

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IMS CLASS RECORD SHEET
LMS PROGRAM

Please type or print the names of all pupils in your class. If you have grouped your class for reading, please designate each pupil's group assignment.

TEACHER: _____ SCHOOL: _____

DISTRICT: _____ GRADE: _____ CLASS: AM_____ PM _____

		NAME	GROUP NO. (OPTIONAL)
LIST # 1	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
LIST # 2	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
LIST # 3	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		

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		NAME	GROUP NO. (OPTIONAL)
LIST # 4	31		
	32		
	33		
	34		
	35		
	36		
	37		
	38		
	39		
	40		
LIST # 5	41		
	42		
	43		
	44		
	45		
	46		
	47		
	48		
	49		
	50		
LIST # 6	51		
	52		
	53		
	54		
	55		
	56		
	57		
	58		
	59		
	60		

PUPIL LIST -

31

32

33

34

35

36

37

38

39

40

MARK THE BOX
ONLY IF THE PUPIL
RESPONDS INCORRECTLY

PUPIL CODE

DELETE

NAME _____

IMS

CRITERION EXERCISE

SHEET

UNIT

4

LMS-HR-3

PART I

1	custom	pray	sister	strange
2	rice	speak	thin	slid
3	shrine	wiggled	dangerous	means
4	steep	hear	gift	believe
5	strongest	smell	itch	sighed
6	evil	ship	son	means
7	custom	mind	pray	part
8	flowers	smooth	broad	squat
9	strongest	sweet	husky	quickly
10	busiest	bowed	fortune	evil

PART II

1	clay	mist	smear	someday
2	cling	clock	rear	spear
3	Clock	List	Somewhat	Rearward
4	wristlet	someday	clinging	spearman
5	Clap	Tiresome	Fear	Clinging
6	rearward	smeared	clock	lonesome
7	list	clay	unlisted	sometime
8	clan	fist	clayish	someplace
9	clock	wrist	someday	lonesome
10	rear	cling	mist	fear

20

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APPENDIX B:

Forms Used With Xerox 660 Scanner/Copier

TEACHER: Howard

IMS CLASS IDENTIFICATION SHEET

DATE:

	MONTH	DAY	YEAR
JAN	0	0	71
FEB	1	1	72
MAR	2	2	73
APR	3	3	
MAY		4	
JUN		5	
JUL		6	
AUG		7	
SEP		8	
OCT		9	
NOV			
DEC			

FYCSP
UNIT 5

1

PUPIL NAME _____

	1	them	Sam	this
	2	man	run	fun
	3	what	that	with
	4	Nan	Nat	Mat
	5	this	is	us
	6	r	an	un
	7	ad	am	Sid
	8	n	r	u
	9	w	th	f
	10	a	un	in

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FYCSP
UNIT 5

2

	11	sun	ran	run
	12	fat	what	feet
	13	fell	will	mill
	14	what	fit	wit
	15	rat	Nat	run
	16	u	c	y
	17	h	n	r
	18	c	Y	u
	19	t	l	i
	20	U	c	Y

LIST NUMBER

MBS

UNIT

6

IMS

CRITERION EXERCISE

RECORD SHEET

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